Identification	**Subject**	**PETE 563 Reservoir Evaluation & Management (REM) 6 ECTS**
	Department	Petroleum Engineering
	Program	Undergraduate
	Term	Spring 2024
	Instructor	Leyla Alimuradova
	E-mail:	leyla.alimuradova@khazar.org
	Phone:	
	Classroom/hours	11 Mehseti str. (Neftchilar campus), Tuesday 18:30- 21:00
	Office hours	Fridays 18:30 – 19:30
Prerequisites	PETE 531 (Formation Evaluation)	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	1. ***Petroleum Reservoir Engineering Practice by Ezekwe, N. ,2010*** 2. *Fundamentals of reservoir engineering L.P. Dake, 2001* 3. *Applied petroleum reservoir engineering. Third Edition. Ronald E. Terry, J. Brandon Rogers, 2015*	
Course outline	This course is designed for master students. The course teaches students how to be successful subsurface geoscientists and engineers, how to combine geoscience and engineering, and trains them to be able to build models that can provide good predictions of hydrocarbon reservoir behavior. Students will have the ability to identify geological aspects of the reservoir that have the greatest impact on hydrocarbon recovery. Additionally, by the end of this course, the students will understand the rock and fluid properties; be able to read and interpret logs well; analyze the measurements and define lithology identification and reservoir characteristics.	
Course objectives	*Students will be familiar with core concepts of reservoir management and evaluation from a technical point of view. Upon completion of this course, students should develop a professional understanding, as well as a practical professional knowledge of:* ➢ *Lifecycle of a Reservoir* ➢ *Reservoir petrophysics* ➢ *Oil Reserve Drive Mechanism* ➢ *Primary, Secondary and Tertiary Recovery Methods* ➢ *Volumetric Calculations of Hydrocarbon Reservoirs* ➢ *Hydrodynamic modeling* ➢ *Uncertainty Management in Reservoir Management and Evaluations*	
Learning outcomes	**By the end of the course the students should be able:** ▪ To analyze technical aspects of reservoir management ▪ To be able to perform estimation of oil and gas reserves. ▪ To be able to calculate reservoir parameters. ▪ To be capable of carrying out a comprehensive analysis of geological and field indicators in the development of oil and gas fields. ▪ To be capable of integrating the technical knowledge to manage hydrocarbon reservoirs efficiently. ▪ To perform required reservoir management calculations with varying assumptions	
Teaching methods	**Lecture**	x

	Group discussion		x
	Practical exercises		x
	Case analysis		x
Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam		30
	Class Participation		5
	Assignments		10
	Quizzes		5
	Project		10
	Final Exam		40
	Total		100
Methods	**Date/deadlines**		**Percentage (%)**
Midterm Exam			30
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Projects			10
Final Exam			40
Total			100
Policy	**Midterm Exam** A midterm exam is an exam given near the middle of an academic grading term or near the middle of any given quarter or semester. The purpose of the examination is that students have a better idea of whether they're advancing well in the course. **Class Participation** The student receives 5 bonus points at the end of the semester if they attend all classes and follow all course policies and procedures. **Assignments** Assessment of the participant's activity in lectures, practical classes and in the learning process in general. **Quizzes** A quiz is a quick assessment of student knowledge to test a students' level of comprehension briefly regarding course material, providing teachers with insights into student progress and any existing knowledge gaps. **Projects** A project is a collaborative activity of students relating to scientific research. The reasons for including projects in the subject course is to show prospective students and research activity on the subject. **Final Exam** A final examination is an exanimation administered at the end of an academic term, with a set of questions or exercises evaluating the skill or knowledge of students given to students at the end of a course of study. **Quiz** Each quiz will consist of 5 questions, and each question will be marked with 1 point. One quiz will be organized in the middle of the first semester and the midterm exam. The second quiz will be organized between the midterm exam and the final exam. **Mini project** The mini project must consist of an abstract, introduction, objectives, methodology, results, discussion, conclusion, and references. The report must be no longer than 5-7 pages of A4 in portrait orientation, with a title and text size set to Arial 12. The mini project must be presented. The mini-project report and presentation marks will be summarized and divided by 2 to obtain		

	an average mark. **Activity** The students should participate in seminars, conferences, and other events related to their courses to build new connections between academic and non-academic institutions. By 10 May 2024, a one-page report on the students' activities will be required. **Cheating/plagiarism** Any form of plagiarism or cheating on a proposal, work plan, bibliography, presentation of literature review, final report will result in the cancellation of the work. In this case, the student will receive a mark of nought without any further consideration. **After identification cheating or plagiarism, no chance will NOT be given for correction and rewrite report.** **Professional Behavior Guidelines** During class hours, students are expected to conduct themselves in a manner that fosters a positive academic and professional atmosphere. Unauthorized discussions and unethical conduct are strictly forbidden. **Ethics** Students must NOT be late to class. All mobile phones must be turned off and put away during the class. **Email** Use your Khazar University email account **ONLY** when contacting your professor. **Student should include "Environmental Science Project" in the subject of any emails that he/she sends, at least for the first few emails.** **Generally, all emails will be responded to within 72 hours during weekdays (not including holidays).**

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/Assignments
1	16.02.24	Introduction to Reservoir Management and Evaluation	Lecture Notes /
2	23.02.24	Reservoir petrophysics: porosity, permeability of reservoir rocks, shale volume	Lecture Notes / Ch.1, 2.
3	01.03.24	Reservoir petrophysics: reservoir fluid saturation	Lecture Notes / Ch. 3.
4	09.03.24	Oil-Reserve Drive Mechanisms (PVT properties of RF)	Lecture Notes / Ch.4, 5.
5	15.03.24	Volumetric Oil Reserve Calculations	Lecture Notes / Ch.9.
6	22.03.24	Holiday	
7	29.03.24	Volumetric Gas Reserve Calculations	Lecture Notes / Ch.8.
8	05. 04.24	Fluid flow in Petroleum Reservoirs	Lecture Notes / Ch.10.
9	12.04.24	Secondary Recovery Methods	Lecture Notes / Ch.16.
10	19.04.24	**Mid-term Exam**	
11	26.04.24	Enhanced Oil Recovery	Lecture Notes / Ch.17
12	03.05.24	Geological Modeling and Reservoir Characterization	Lecture Notes / Ch.18.

13	10.05.24	Holiday	
14	17.05.24	Conservation of Reservoir Energy	Lecture Notes / Ch.20
15	24.05.24	The general Material Balance Equation	Lecture Notes / Ch.7.
16		Practical Exercises of Professional Petroleum Reservoir Management	N/A
	TBA	**Final Exam**	

This syllabus is a guide for the course and any modifications to it will be announced in advance.